

What is claimed is:

1. An apparatus for X-ray analysis comprising:

a focusing optical system formed by arranging an X-ray
5 source adapted to generate X-rays, specimen supporting means
for supporting a specimen and two-dimensional X-ray detecting
means for detecting X-rays from the specimen so as to satisfy
the requirements of the focusing optical system;

means for shifting the angle of incidence of X-rays
10 relative to the specimen by rotating said specimen or said X-
ray source around a central axis of rotation passing through
the surface of the specimen;

means for moving said two-dimensional X-ray detecting
means in parallel with said central axis of rotation; and

15 a mask arranged at a position in front of said two-
dimensional X-ray detecting means as viewed from said specimen
and having a slit on a line intersecting a plane rectangularly
intersecting said central axis of rotation and containing a
central optical axis of incident X-rays.

20 2. An apparatus according to claim 1, further comprising:

X-ray beam switching means adapted to switch the X-ray
beam striking the specimen from a divergent beam to a parallel
beam or vice versa.

3. An apparatus according to claim 2, further comprising:

25 mask supporting means arranged so as to allow said
mask to move between a first position located in front of said

two-dimensional X-ray detecting means and a second position not located in front of said two-dimensional X-ray detecting means as viewed from said specimen.

4. An apparatus according to claim 1, wherein

5 the shift of the angle of incidence of X-rays relative to the specimen and the parallel movement of said two-dimensional X-ray detecting means are synchronized with each other.

5. An apparatus according to claim 2, wherein

10 the shift of the angle of incidence of X-rays relative to the specimen and the parallel movement of said two-dimensional X-ray detecting means are synchronized with each other.

6. An apparatus according to claim 3, wherein

15 the shift of the angle of incidence of X-rays relative to the specimen and the parallel movement of said two-dimensional X-ray detecting means are synchronized with each other.

7. An apparatus according to claim 1, wherein

20 the X-ray receiving surface of said two-dimensional X-ray detecting means is that of a cylinder formed around the central axis of rotation.

8. An apparatus according to claim 2, wherein

25 the X-ray receiving surface of said two-dimensional X-ray detecting means is that of a cylinder formed around the central axis of rotation.

9. An apparatus according to claim 3, wherein

the X-ray receiving surface of said two-dimensional X-ray detecting means is that of a cylinder formed around the central axis of rotation.

5 10. An apparatus according to claim 4, wherein

the X-ray receiving surface of said two-dimensional X-ray detecting means is that of a cylinder formed around the central axis of rotation.

11. An apparatus according to claim 5, wherein

10 the X-ray receiving surface of said two-dimensional X-ray detecting means is that of a cylinder formed around the central axis of rotation.

12. An apparatus according to claim 6, wherein

15 the X-ray receiving surface of said two-dimensional X-ray detecting means is that of a cylinder formed around the central axis of rotation.

13. A method for X-ray analysis using a two-dimensional X-ray detecting means comprising:

causing X-rays emitted from an X-ray source to strike
20 a specimen in the form of either a divergent beam or a parallel beam; wherein

in the case of using a divergent beam, said method further comprising steps of:

shifting the angle of incidence of X-rays striking
25 said specimen by rotating either said specimen or said X-ray source around a central axis of rotation running through the

surface of the specimen;

arranging a mask having a slit in front of said two-dimensional X-ray detecting means so as to make the slit to be located on a line intersecting a plane rectangularly

5 intersecting said central axis of rotation and containing a central optical axis of incident X-rays; and

moving said two-dimensional X-ray detecting means in parallel with said central axis of rotation in synchronism with the shift of the angle of incidence of X-rays relative to
10 the specimen.